

WHAT IS CLAIMED IS:

1. An electrical control unit for an automobile comprising:
 - a microcomputer which controls equipment installed in automobile,
 - an input circuit which passes an electric signal from the outside to said
- 5 microcomputer,
 - a driver circuit which outputs the electric signal output from said microcomputer outside, and
 - 10 a power supply circuit which supplies power supply to said computer, wherein
 - 15 said microcomputer is started by shifting said power supply circuit from an inert state to an active state to generate the voltage by which said microcomputer is operated by a wake-up signal from the circuit other than the ignition switch even when the ignition switch of said automobile is cut off, and the predetermined processing is executed by the microcomputer.
 - 20 2. An electrical control unit for an automobile according to claim 1, wherein said wake-up signal is a signal transmitted at least from either the electrical control unit for the keyless entry, or an electrical control unit for the door lock management by which it can be perceived whether the car owner gets on or have gotten on the automobile concerned.
 - 25 3. An electrical control unit for an automobile according to claim 2, wherein said electrical control unit for an automobile starts to energize at least one of an airflow sensor, an O₂ sensor, a fuel pump and various heater devices, which are a part of said equipment, before performing the processing by which said engine is started after said wake-up signal is received and the electrical control unit is started.
 - 30 4. An electrical control unit for an automobile comprising:
 - a microcomputer which controls equipment installed in automobile,
 - an input circuit which passes an electric signal from the outside to said
 - 35 microcomputer,

a driver circuit which outputs the electric signal output from said microcomputer outside, and

a power supply circuit which supplies power supply to said computer, wherein

5 said electrical control unit for the automobile is started by a wake-up signal from the circuit other than the ignition switch even when the ignition switch of said automobile is cut off,

10 said wake-up signal is a signal output by a timer module built into said electrical control unit for the automobile or an electrical control unit other than said electrical control unit for the automobile, and

15 said timer module provides with a counter, a wake-up timing setting register, and a comparator, and when the value of said counter reaches the value set in said wake-up timing setting register beforehand, said wake-up signal is output.

15

5. An electrical control unit for an automobile according to claim 4, wherein said microcomputer is started by shifting said power supply circuit from an inert state to an active state to generate the voltage by which said microcomputer is operated by the wake-up signal, and the predetermined processing is executed by the microcomputer.

20 6. An electrical control unit for an automobile according to claim 5, wherein after said microcomputer starts, said microcomputer performs either of the monitor of the state of various equipment of the automobile concerned and
25 the control of various equipment if necessary.

25 7. An electrical control unit for an automobile according to claim 1, wherein said microcomputer make said power supply circuit inert after the predetermined processing is executed.

30

8. An electrical control unit for an automobile according to claim 4, wherein when ignition switch is connected, the period after the last ignition

switch connection is cut off is calculated by using the value of said counter, the amount of the fuel leakage from the injector for the period is calculated, and the amount of the fuel injection at the engine starting is corrected by the calculation result.

5

9. An electrical control unit for an automobile according to claim 4, wherein said automobile concerned is controlled by estimating the degree of the deterioration with age of various equipment of the automobile concerned by using the value of said counter.

10

10. An electrical control unit for an automobile comprising:
a microcomputer which controls equipment installed in automobile,
an input circuit which passes an electric signal from the outside to said microcomputer,
a driver circuit which outputs the electric signal output from said microcomputer outside, and
a power supply circuit which supplies power supply to said computer,
wherein

20 said power supply circuit is a semiconductor IC integrated the following components;

a first regulator which generates the voltage to operate said microcomputer by inputting said ignition switch signal or said wake-up signal,

a second regulator which operates even when said ignition switch is cut off,

25 an OR circuit activating said first regulator by using either the ignition switch signal or one of said plural wake-up signals,

a start factor determining means to distinguish whether said first regulator is activated by which signal of the ignition switch signal and one of plural wake-up signals,

30 a communication driver which transmits and receives the communication signal with an outside electrical control unit through a communications line,

a latch circuit to latch the wake-up signals transmitted from the outside electrical control unit through said communications line,
a reset circuit which generates a reset signal to said microcomputer,
a watchdog timer to prevent the runaway of the active program in said
5 microcomputer, and
a serial communications module which communicates serially with said microcomputer.

11. An electrical control unit for an automobile according to claim 10,
10 wherein

said start factor distinguished by the start factor determining means in said semiconductor IC is transmitted to said microcomputer through said serial communications module.

15 12. An electrical control unit for an automobile according to claim 10,
wherein

said semiconductor IC includes a counter, a wake-up timing setting register, and a comparator, and

20 said timer module which outputs the wake-up signal when the value of said counter reaches the value set in said wake-up timing setting register beforehand is integrated therewith.

13. An electrical control unit for an automobile according to claim 12,
wherein

25 said microcomputer sets the value of said wake-up timing setting register of said timer module through the serial communications module of said semiconductor IC, or said timer module transmits the counter value at that time to said microcomputer.

30 14. An electrical control unit for an automobile according to claim 4, wherein
said power supply for making said timer module operate even for the period when the power supply is not supplied from the outside to said electrical

control unit for an automobile is provided in said electrical control unit for the automobile.

15. An electrical control unit for an automobile according to claim 14,

5 wherein

said power supply is supplied to said timer module through the power supply switch means, and said switch means supplies a current to said timer module either from said outside power supply for the period when the power is supplied from the outside to said electrical control unit for the automobile, or
10 from the power supply provided in said electrical control unit for the automobile for the period when the power is not supplied from the outside.

16. An electrical control unit for an automobile according to claim 12,

wherein

15 said electrical control unit for the automobile provides inside with the power supply to operate at least said timer module for the period when the power supply is not supplied from the outside,

said semiconductor IC has the power supply switch means, and

said switch means supplies a current to said timer module either from

20 said outside power supply for the period when the power supply is supplied from the outside to said electrical control unit for the automobile, or from the power supply provided in said electrical control unit for the automobile for the period when the power supply is not supplied from the outside.

25 17. An electrical control unit for an automobile according to claim 14,

wherein

said power supply to operate said timer module is a lithium electric cell battery.

30 18. An electrical control unit for an automobile according to claim 16,

wherein

said power supply to operate said timer module is a lithium electric cell

battery.